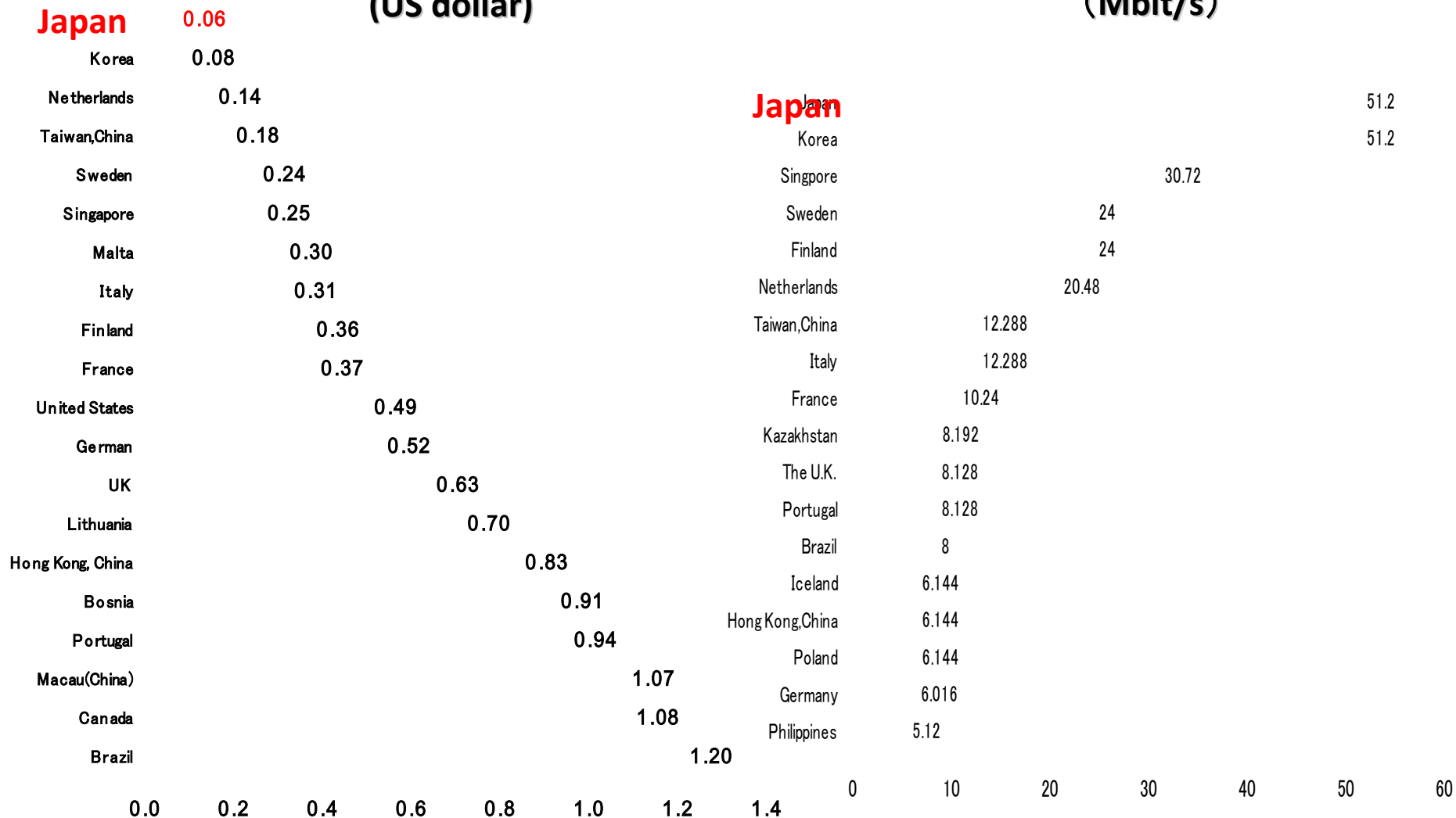


# Broadband Services in Global Comparison

## Broadband prices (100kbit/s) (US dollar)

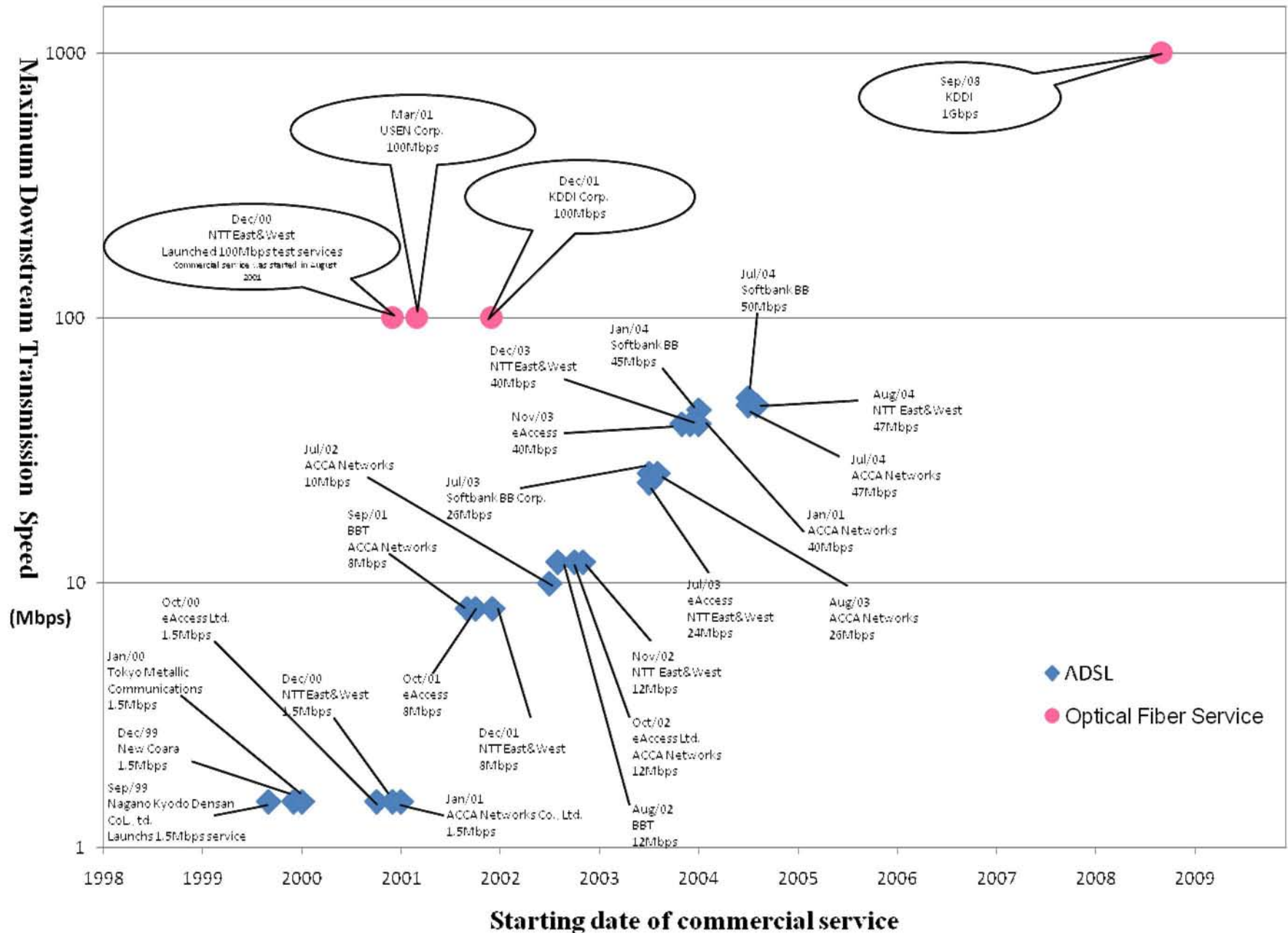
## Speed of DSL (Mbit/s)



Source : ITU "World Information Society Report 2007"]" (June 2007)

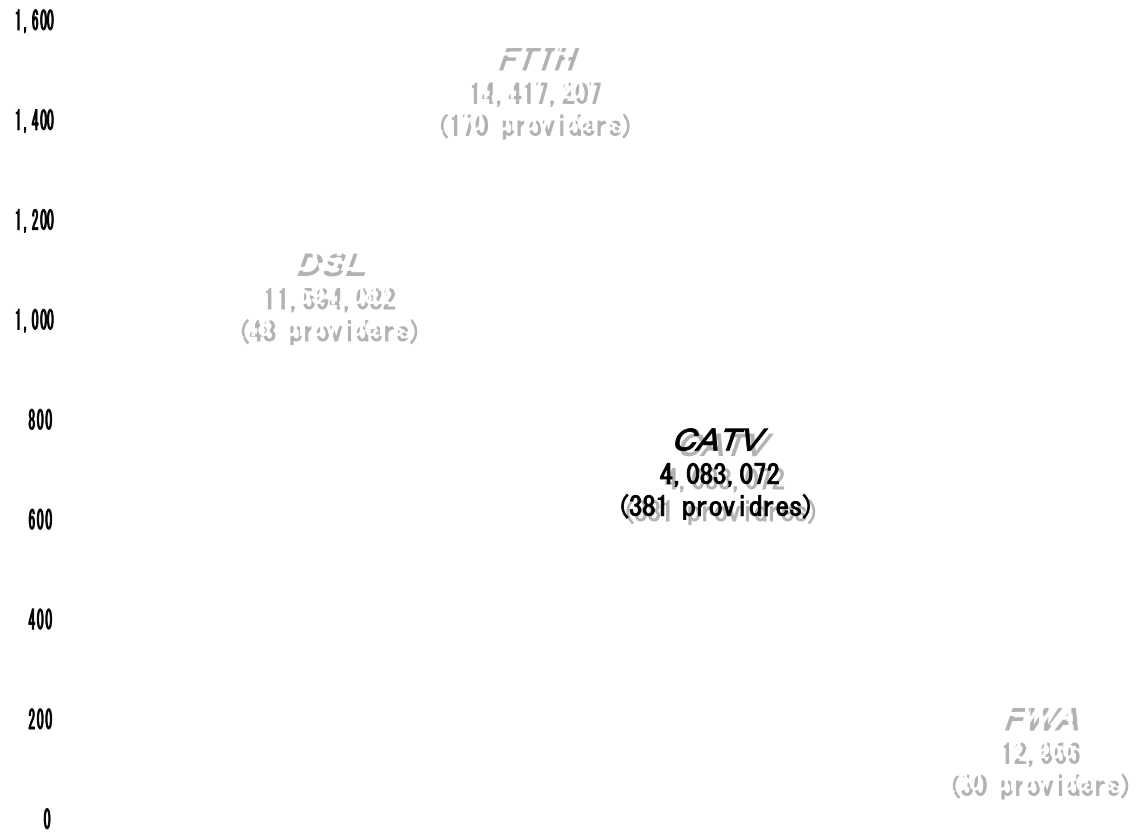
Source : ITU Internet Reports 2006 "digital.life" (December 2006)

# Transmission Speed became Higher

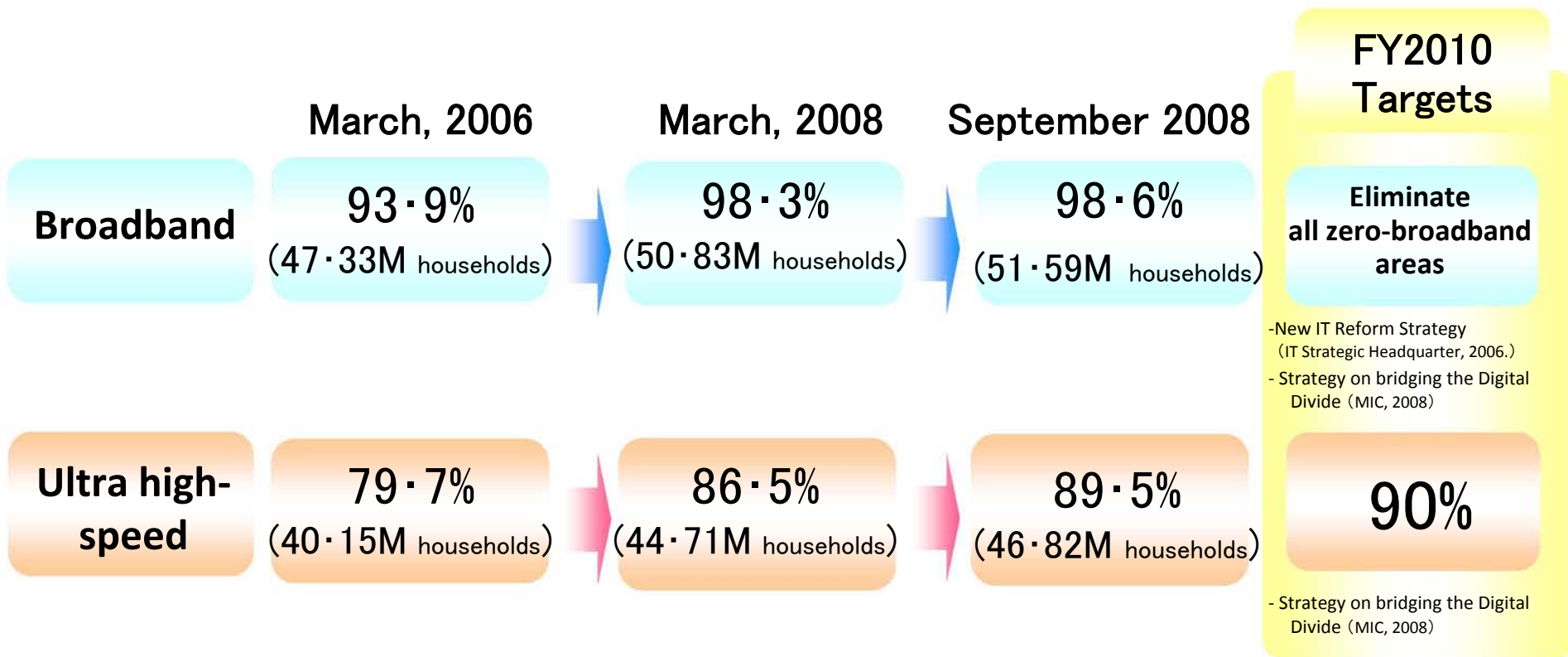


# The Number of Fixed Broadband Subscribers

【Number of Broadband Service Users】



# Service Area Coverage Rate of Households



# Broadband Policies and Targets in National ICT Strategies

Appendix 2-1

2001~

2006~

~2010

## e-Japan Strategy(January 2001)

Establishment of Broadband infrastructure

- ①Infrastructure  
Establishing the Internet-accessible environment in 2005
  - high-speed access covering 30 million households
  - ultrahigh-speed access covering 10 million households
- ②e-commerce
- ③e-government
- ④human resource development

4 areas

Shift from infrastructure development to application and utilization

Some of the goals regarding infrastructures and e-commerce have been achieved.

Becoming the world's leading IT-oriented nation by 2005

## e-Japan Strategy II(July 2003)

Focus on Application and Effective Use of IT

- Promotion of the effective utilization of IT in the seven leading areas
- ①medical services②food
  - ③lifestyle④small and medium enterprise financing
  - ⑤knowledge⑥employment and labor ⑦public service

7 areas

Solving social problems through utilizing ICT

- Major changes have been seen in the environment for usage of the Internet and in others areas since the last IT strategy was formulated three years ago.
- In light of the current economic conditions effected by the financial crisis, it is an urgent task to implement economic stimulus measures that utilize information and communications.

## New IT Reform Strategy (January 2006)

Pursuit of IT Structural Reform Capabilities

- ①medical services②environment③IT-based safe and secure society(anti-disaster measures etc)④ITS⑤e-government services⑥IT-oriented corporate management⑦prosperous lifestyle(telework etc) ⑧a society that adopts universal designs(promotion of subtitled television broadcasting, etc)
- ⑨infrastructure⑩a secure IT society(information security measures)⑪highly competent human resources
- ⑫development of human resource base⑬R&D
- ⑭international competitiveness⑮international contribution

15 areas

There is no need to wait until fiscal 2010 to formulate new strategies including an urgent measure (three-year plan).

A new strategy with an eye towards a new digital era

Becoming a society where anyone can appreciate the benefits of IT at anytime from anywhere by 2010

# Project to Establish Digital Japan (ICT Hatoyama Plan) Appendix 2-2

Priority items of the project (outline), which are to be intensively implemented in the first three years, were decided and declared. The course of the project was set towards demonstrating Japan's underlying strength through utilizing ICT. In the deliberation for the project, the emergency proposal, "ICT New Deal" (Feb. 23, 2009), presented by the panel of ICT Vision along with other matters, was taken into consideration.

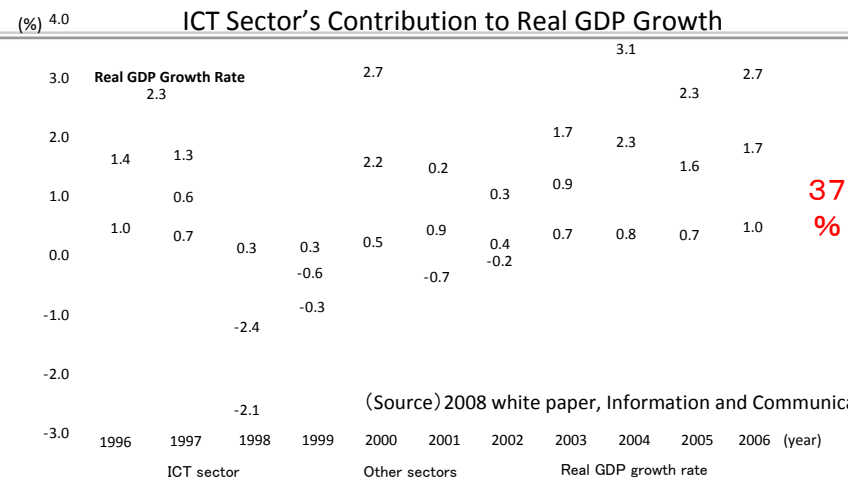
## Objectives of this Project

- By giving momentum to ICT-related investment in every possible field,
  - create an environment where citizens (users) can experience prosperity, safety and security, which is realized through utilization of ICT.
  - transform the industrial structure and strengthen international competitiveness of Japan through fully utilizing ICT.

## Future effects expected from this project (nine items)

- A short-term effect on the economic recovery through ICT-related investment
  - new markets valued at trillions of yen (based on the cumulative total) are expected to be created over the next three years (generating 300,000 to 400,000 jobs).
- Enhancement of the medium-term growth potential by accelerating and moving up future-oriented investment related to ICT
  - the market size of the ICT industry is expected to double between 2015 and 2020 (creating new markets up to a maximum of around 100 trillion yen).

The ICT sector (valued at 95.2 trillion yen as of 2006) accounts for around 10% (9.8%) of the overall industries. It positively contributes to the economic growth regardless of whether the economy is in boom or recession. The ICT sector constitutes approximately 40% of the recent economic growth.



# Project to Establish Digital Japan (Image)

Appendix 2-2(con't)

Industries are to Demonstrate their Underlying Potential

## Creation of New Digital Industry

~Accelerating the pace to place new technology, in which Japan is strong, into the marketplace~

- Speed up R&D to establish technologies related to next-generation wireless communications (which is expected to create new markets the size of several tens of trillions of yen) in the next few years. Specifically, by using the frequencies freed up when analog television goes off the air or the bandwidth that will be reallocated, new technologies will realize a convenient lifestyle environment without power cables, automobiles equipped with a traffic-accident prevention system, and so on.
- Accelerate R&D for innovative network technology that can achieve the world's top level of ultrahigh speed with great reliability and limit energy consumption to a minimum, new 3-D technology that does not require special glasses to see 3-D images, automatic speech translation technology, and so on.
- Examine possibilities to utilize so-called "white space."

Convenient lifestyle environment  
without power cables



Connecting home appliances with a wireless network (wireless super broadband service) eliminates wiring in a house

Automobiles with devices  
that prevent collisions

Milliwave Radar to monitor  
for oncoming obstacles

Driver to Driver  
Communications

3-D Image



The Government is to Demonstrate its Underlying Potential

## Establishment of Innovative e-Government

~The government is to take the initiative to introduce advanced technologies and realize efficiencies~

- Build the "Kasumigaseki Cloud" (tentative name) in phases to be completed by 2015 in order to improve public service (e.g., dramatically cutting costs for constructing and administering information systems) by utilizing innovative technology (i.e., cloud computing), and reduce burdens shouldered by the private sector by standardizing corporate codes
- Digitize intellectual and cultural assets accumulated in the analog era, which are in the possession of the National Diet Library and the National Archives of Japan, and create a "National Digital Archive" (tentative name) that can be accessible from anywhere in the world, and allow the private sector to join this archive project with an aim to develop new services

### Kasumigaseki Cloud

- ✓ No need to maintain each and every system
- ✓ Possible to use only the necessary amount of computer resources
- ✓ Centralize the data centers separately managed by the ministries and agencies

System A1

System A2

System A3

System B1

System B2

System B3

System C1

System C2

System C3

System D1

System D2

System D3

Ministry A

Ministry  
B

Ministry  
C

Ministry D



# Project to Establish Digital Japan (Image)

Appendix 2-2(con't)

## Regions are to Demonstrate their Underlying Potential

### Establishment of a Ubiquitous Town

~ Improve local services and support indigenous industries by intensively applying ICT ~

- In light of the “autonomous settlement regions” scheme, connect public institutions of local governments by fiber-optic networks.
- Based on the above infrastructure, improve public service for local residents through telemedicine and distance education systems.
- Promote the establishment of a safe and secure community by intensively applying ubiquitous technology. Specific measures include a monitoring system for school children who commute to and from school; a tourist/direction guidance system; promotion of “public commons for safety and security;” facilitation of “hometown mobile phone projects;” implementation of wide-area facility management projects; establishment of a system for spatial codes as infrastructure.
- Facilitate the establishment of platforms, by utilizing ICT, that support local small/medium enterprises and individual business owners in smoothly conducting joint operations such as procurement, training and marketing.
- Promote the establishment of e-municipalities by renewing information systems to be consistent with regional information platforms.

## Building Infrastructure That Underpins the Underlying Potentials

### Establishment of an Advanced Digital Network

- Promote the elimination of zero-broadband areas (aiming to achieve it by the end of FY2010), and speed up the elimination of no-signal areas for mobile phones.
- Ensure steady progress for the migration to terrestrial digital broadcasting (the complete shift will be fully accomplished in July 2011).

### Development and Facilitation of Creative Industries

- Enhance the capability to distribute local content to users at home and abroad. Facilitate overseas market entry of content business such as Japanese TV programs and animated cartoons, which are highly evaluated by the world.
- Strengthen the distribution of content in the style of convergence/linkage between communications and broadcasting, such as IPTV.
- Facilitate affiliation of cable television networks in a large area.

### Strengthening International Competitiveness of the ICT Industry

- Facilitate the “Ubiquitous Alliance Project” (establishing a model system that corresponds to the needs of a partner country), which will give momentum to develop ICT’s three main areas (digital broadcasting, wireless network, and next generation IP network) in international fields.
- Advance discussions to put the “Digital Silk Road” scheme into practice.

### Development and Deployment of “Ubiquitous Green ICT”

- Encourage efforts to make the ICT sector more eco-friendly, such as measures to promote the development of energy-saving networks and the establishment of “green cloud data center” (tentative name).
- Promote regional environmental measures that utilize ICT.

### Stepping Up Efforts to Nurture Highly-Capable Personnel in the ICT Sector

- Nurture highly capable personnel in the ICT sector, who can generate added value by utilizing ICT (supporting the establishment of a national-center sort of function)
- Promote provision of necessary training for nurturing personnel in the ICT sector

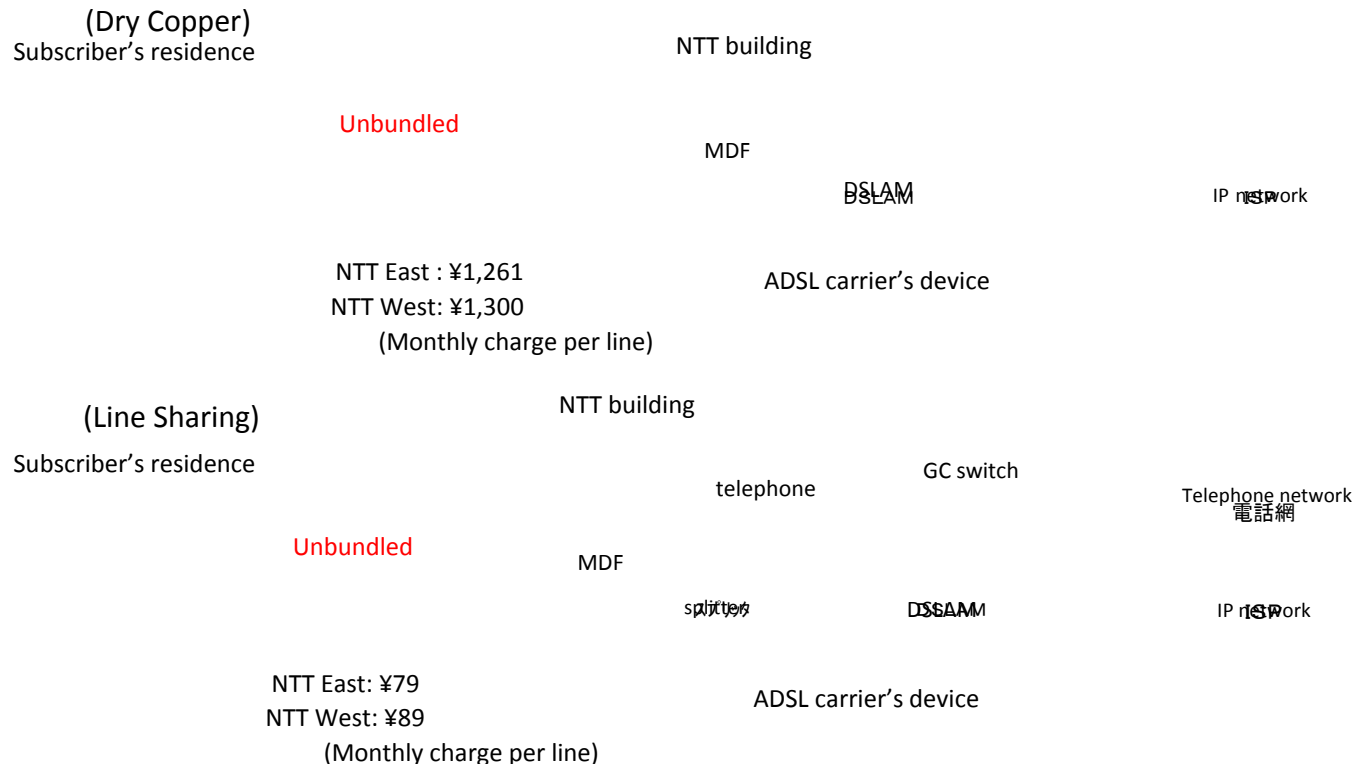
### Realizing Safe and Secure Networks

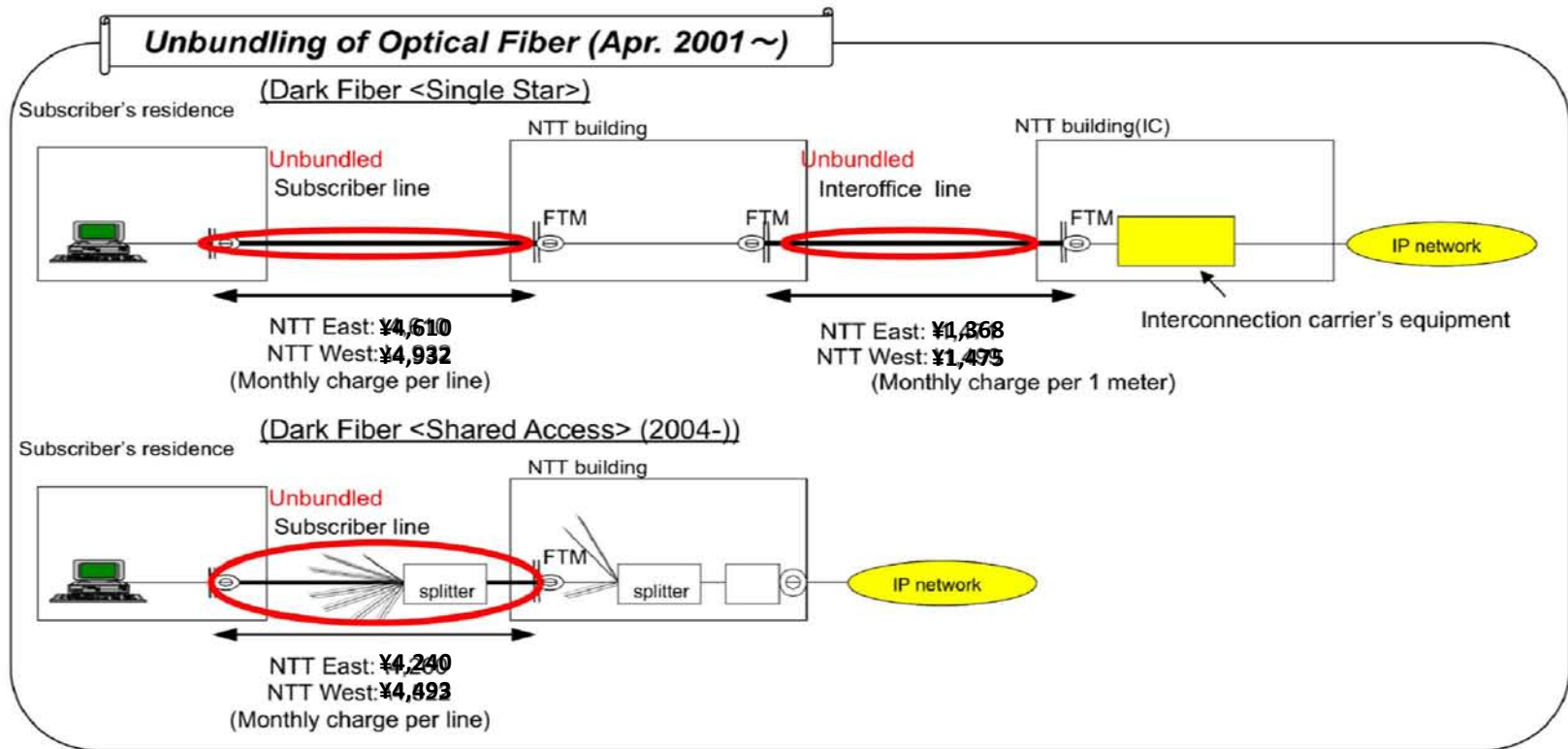
- Advance the safety and security of networks by implementing measures for protecting personal information from leakage, improving security functions, and tackling illegal and malicious information.



- ❑ Unbundling is to set the interconnection charges per function. (You don't have to pay for the functions you don't need.)
- ❑ The subscriber lines (Copper Cable and Optical Fiber) and interoffice lines (Optical Fiber) were made to be unbundled for competitive carriers firstly by Administrative Guidance in 1999 and 2000 and then by Ministerial Ordinances in 2000 and 2001.

## *Unbundling of Copper Cable (Sept. 2000 ~)*





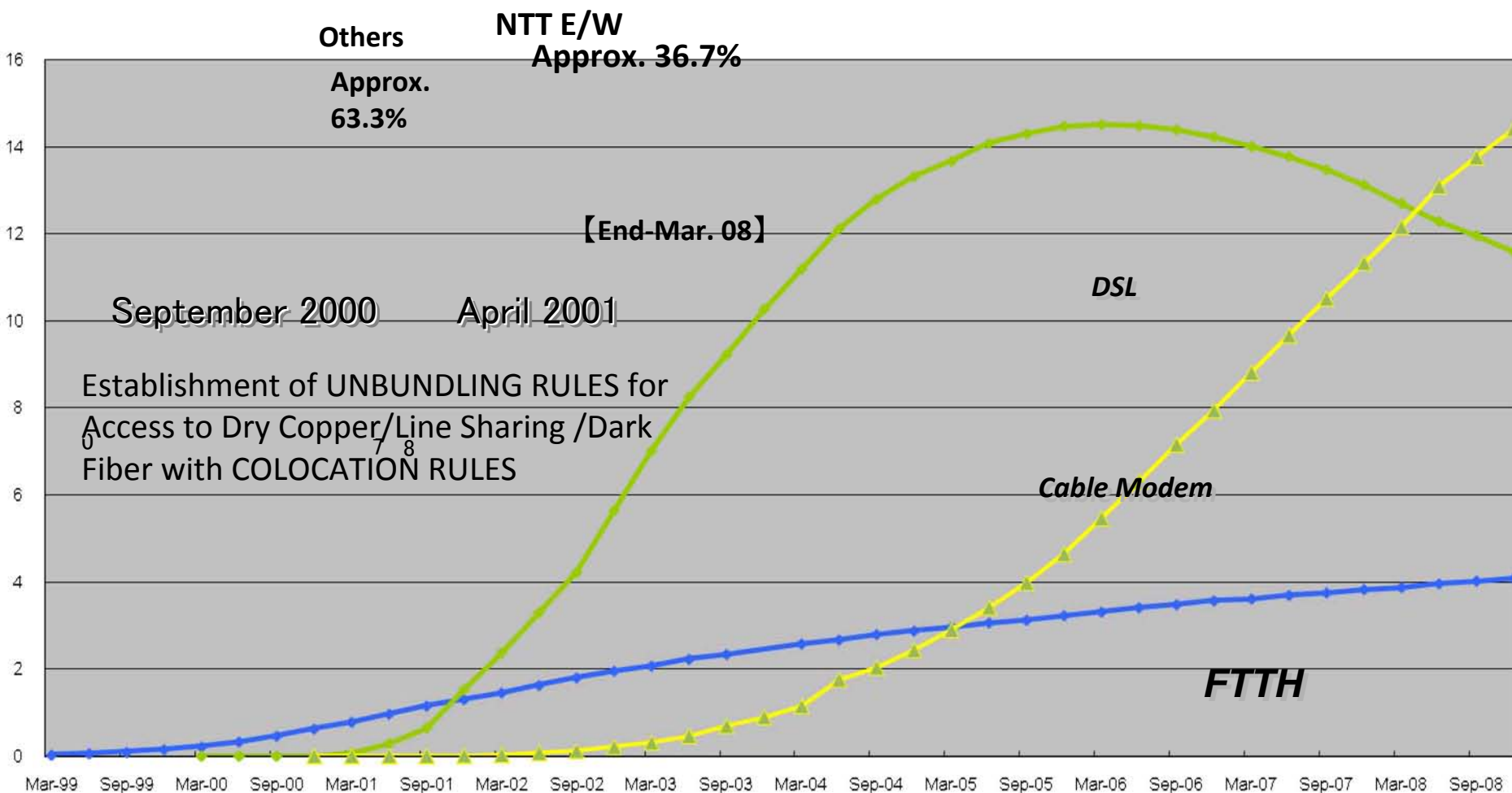
❑ To connect facilities with the unbundling of lines, COLOCATION rules were vital for competitive carriers to provide their services.

#### ***Colocation Rules (Sept. 2000~)***

- 1) Disclose information on open space
- 2) Set application procedures for construction and maintenance by interconnection carriers
- 3) Set up standard period (for survey application, reply, application of installation and starting construction)

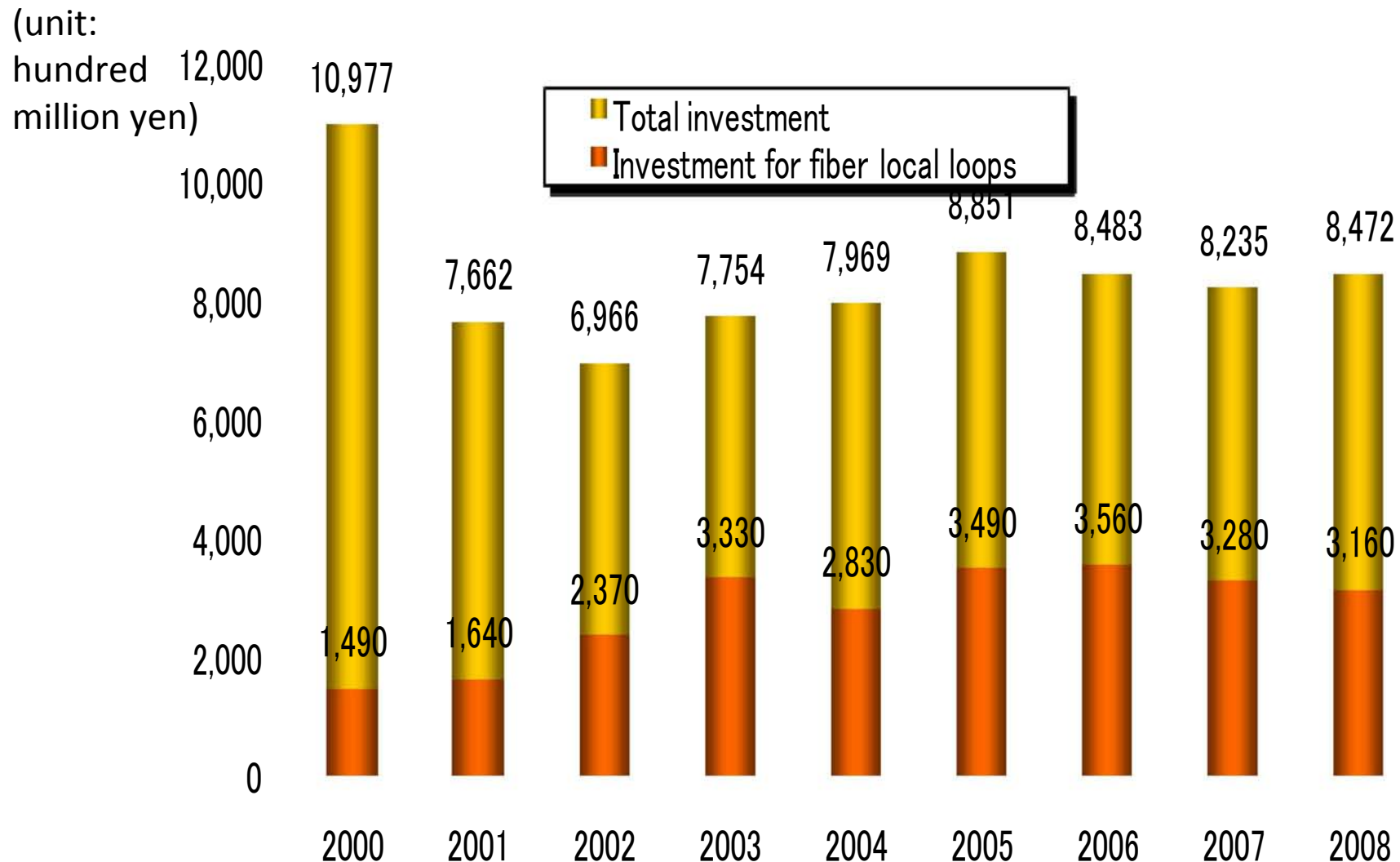
# Competition brought many subscribers

(millions subscribers)

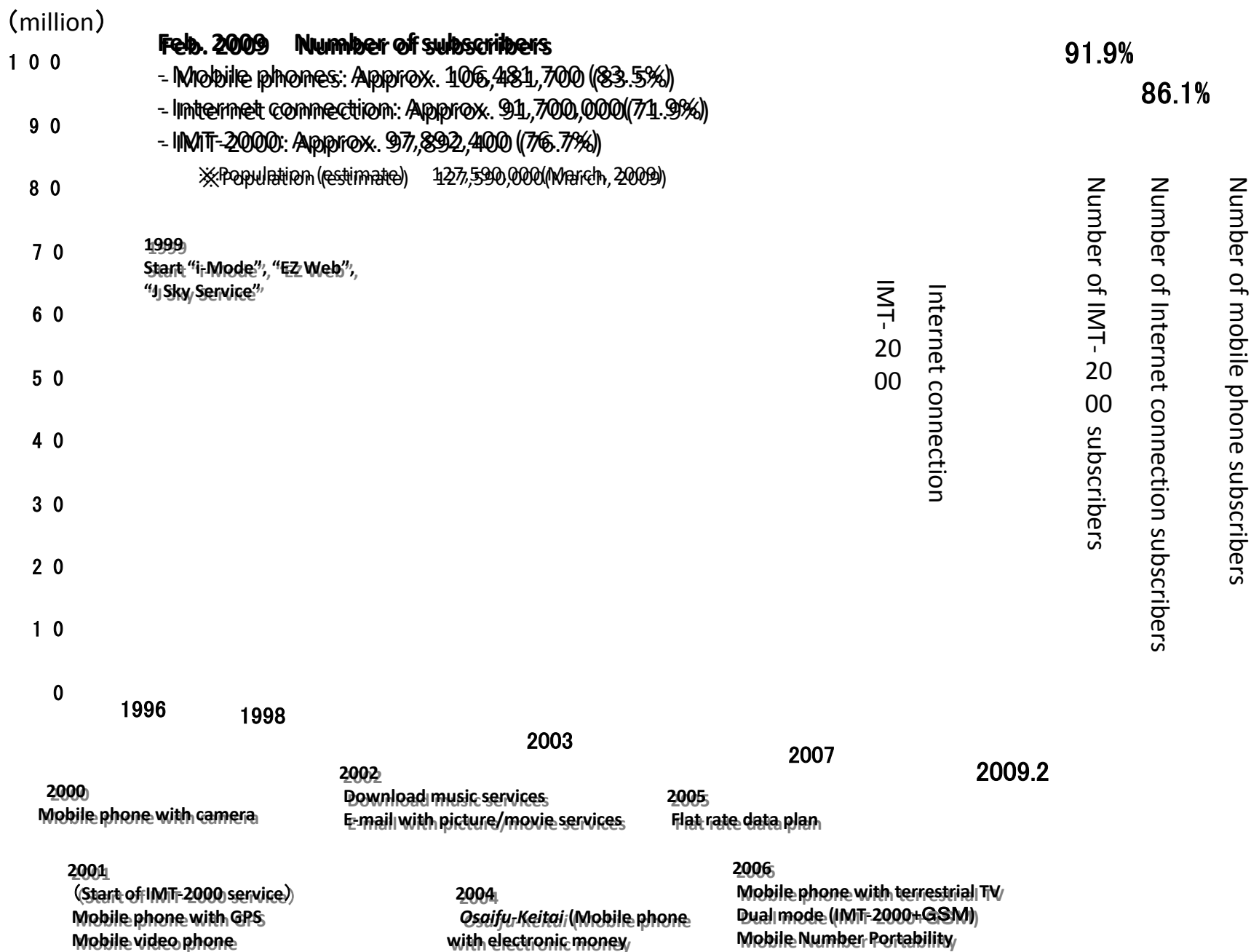


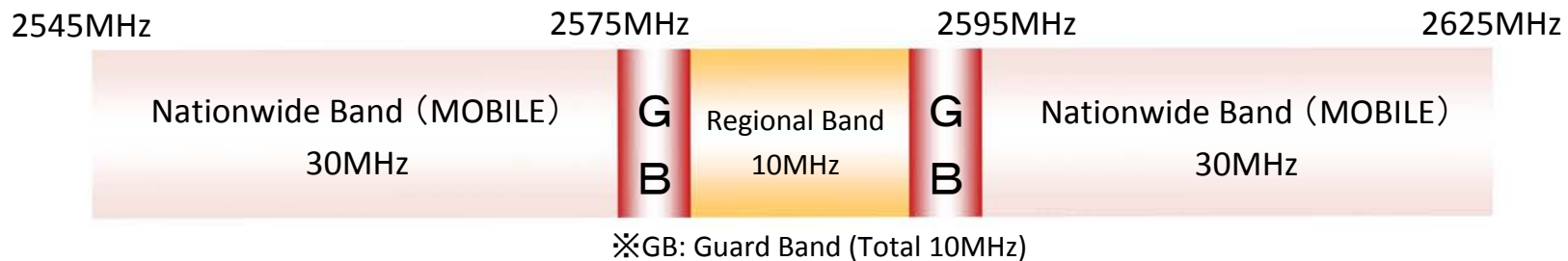
# Fiber unbundling has not affected NTT's Investment in fiber so far

## 【Total investment and trend of investment for fiber local loop】



# Changes in the Mobile Phone Environment





## Nationwide Band

- Allocate 30MHz each, maximum 2 operators.
- Restriction of incumbent cellular operators share (less than 1/3) .
- To launch the service within 3 years after the spectrum allocation.
- To cover 50% or more of each planned service area within 5 years after the spectrum allocation.
- To set up plans for MVNOs to use the BWA networks.



Beauty Contest among four Applicants

**Willcom(XGP), UQ Com(Mobile WiMAX) (Dec 21, 2007 )**

## Regional Band

- Allocate 10 MHz to local operators (including CATV), principally city by city.
- Requirement of plans to contribute to enhancing the local welfare, such as serving in digital divided areas to secure broadband access in rural areas.



**42 operators got licenses (41 CATV operators, 1 telecom operator) (June 16, 2008)**



## Grant-in-Aid for Promoting the Local Telecommunications Infrastructure (FY2006-)

This will be provided for a wide scope of activities to be performed by a local self-governing body that will establish an information and communications infrastructure (for example: FTTH, cable services, ADSL, Internet via satellite) in accordance with its characteristics to bridge the information gap.

Granting Rate	Budget Amount (billion)
a. Cities, towns, and villages falling in areas under disadvantageous conditions :1/3	FY2009 ¥89.162
b. Merged cities, towns, and villages including a., or alliance cores :1/3	FY2008 ¥16.72
c. Third-sector corporations :1/4	FY2007 ¥ 5.7
	FY2006 ¥ 9.36

## Local Intranet Infrastructure Subsidiary (FY1998-)

This will be provided for a local public network whose speed is high or ultra high, connecting with schools, libraries and town hall.

Granting Rate	Budget Amount (billion)
a. Prefectures, cities, towns, villages, or alliance cores (approximately 03. million population) :1/3	FY2009 ¥ 8.94
b. Alliance cores except for a., or merged cities, towns, and villages, or Okinawa :1/2	FY2008 ¥ 3.365
c. Islands :2/3	
d. Third-sector corporations :1/4	